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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,212	02/05/2002	Sang-Young Lee	B-4483PCT 619789-9	8084
36716	7590	08/11/2004	EXAMINER	
LADAS & PARRY			CHEN, VIVIAN	
5670 WILSHIRE BOULEVARD, SUITE 2100			ART UNIT	
LOS ANGELES, CA 90036-5679			PAPER NUMBER	

1773

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/049,212	Applicant(s) LEE ET AL.	
	Examiner Vivian Chen	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 30-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-28, 30 and 33-36 is/are allowed.
- 6) ☒ Claim(s) 1-14, 31, 32 and 37-47 is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claim 29 has been cancelled by Applicant.
2. The indicated allowability of claims 37-40 is withdrawn in view of the newly discovered reference(s). Rejections based on the newly cited reference(s) follow.

Specification

3. The objection to the amendment to the specification filed 11/6/2003 under 35 U.S.C. 132 have been withdrawn in view of Applicant's amendments filed 5/3/2004.

Claim Rejections - 35 USC § 112

4. The rejections under 35 U.S.C. 112, first paragraph in the previous Office Action have been withdrawn in view of Applicant's amendments filed 5/3/2004.
5. The rejections under 35 U.S.C. 112, second paragraph in the previous Office Action have been withdrawn in view of Applicant's amendments filed 5/3/2004.
6. Claim 27 are objected to because of the following informalities. Appropriate correction is required.

Claim 27 contains a typographical error regarding "iron beam".

Claim Rejections - 35 USC § 103

7. Claims 1-14, 31-32, 37-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over VAN RIJN (US 5,753,014).

VAN RIJN discloses a multilayer membrane comprising one or more membrane layers and at least one support layer, wherein the membrane layers and the support layers have different pore sizes/distributions. The membrane layer has a typical thickness of 20 nm to 5 microns, typical pore sizes of 5 nm to 50 microns, and is composed of polymers such as polypropylene, wherein the membrane layer is removable (i.e., dissolvable) in solvents such as acetone. The support layer has a typical thickness of 10-1000 times the membrane layer(s), typical pore sizes of 5-100 times the membrane pore size, and is composed of polymers such as polypropylene, polyolefins, or polyester. The membrane layer may incorporate catalysts and other active components and is suitable for use as catalytic or reverse osmosis filtration articles. (lines 8-31, col. 2; line 63, col. 2 to line 7, col. 4; line 1-8, col. 4; line 65-68, col. 6; line 52-68, col. 12; line 39, col. 12 to line 33, col. 13)

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply an active material to a support with different porosity characteristics in order to optimize durability and reaction efficiency. One of ordinary skill in the art would have selected known polypropylene resins (claim 3) depending on the specific mechanical and chemical properties required for specific usage conditions. It would be obvious to adjust the air permeability of the composite (claim 10) and the wetting properties (claim 11) depending on type of reactants and reaction process and equipment used in order to optimize the transport, electrical, or other physical characteristics for given applications. One of ordinary skill

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in the art would have used conventional functional layers such as adhesion-promoting polymeric tie layers (claim 13) between the membrane and support layers in order to prevent delamination. Regarding claims 37-47, the stretching steps is a product-by-process limitation and is not further limiting in as so far as the structure of the product is concerned. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. ***The patentability of a product does not depend on its method of production.*** If the product in the product-by-process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." [emphasis added] *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Once a product appearing substantially identical is found, the burden shifts to applicant to show a ***unobvious*** difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1993).

Response to Arguments

8. Applicant's arguments filed 5/3/2004 have been considered but are moot in view of the Applicant's amendments and the new ground(s) of rejection.

Allowable Subject Matter

9. Claims 17-28, 30, 33-36 are allowable over the prior art of record.

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10. Claims 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to disclose or suggest: (1) the claimed methods of forming a composite membrane, wherein an active layer is formed on the precursor film by application of a liquid polymer solution, followed by stretching (claims 17, 33); or (2) a battery separator membrane or a rechargeable lithium battery containing the recited composite membrane (claims 15-16). Specifically, LEE ET AL (US 6,540,953) fails to claim and WO 99/25464 fails to disclose the recited process, incorporating the step of forming the active layer using a liquid polymer solution; VAN RIJN fails to disclose or suggest the use of composite membranes in batteries.

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Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vivian Chen whose telephone number is (571) 272-1506. The examiner can normally be reached on Monday through Thursday from 8:30 AM to 6 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

The General Information telephone number for Technology Center 1700 is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 8, 2004



Vivian Chen
Primary Examiner
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